

ABSTRACT

Disclosed is a method of manufacturing a semiconductor memory device. An ion implantation layer is formed into a given depth of the semiconductor substrate. Therefore, it is possible to prevent the dopant (P31) 5 gettered on the surface of the semiconductor substrate from being diffused toward the bottom when a well ion is injected. The dopant (P31) gettered on the surface of the semiconductor substrate is easily experienced by transit-enhanced diffusion even at low temperature. Also, the dopant may serve as 10 counter doping in the buried channel. In the present invention, as the behavior of this dopant (P31) is prohibited in a subsequent annealing process, the concentration of the ion for controlling the threshold voltage could be uniformly kept. Therefore, the present invention can manufacture devices of high reliability having a stable threshold voltage characteristic and can be 15 flexibly applied to manufacturing the devices depending on reduction in the design rule.